

3 Local Social Environment and Men's Risk for Heart Disease Mortality

Most contemporary heart disease prevention efforts focus on changing the behavior of individuals regarding lifestyle factors: dietary habits, leisure-time physical activity, and tobacco use.¹ Health promotion programs that focus on behavioral risk factors have been effective among adults who are highly educated, fully employed, and highly motivated to improve their health (i.e. among relatively privileged populations). However, the lifestyle approach to heart disease prevention has serious limitations for people who are at highest risk: namely, rural residents, the working class, and the poor. These groups, unfortunately, have greater exposure to risk factors such as cigarette smoking, physical inactivity, high-fat diets, and psychological stress. These groups also face substantial social, economic, and geographic barriers to risk factor reduction.

A holistic alternative to the lifestyle approach to heart disease prevention focuses on broad improvements in local social environments, recognizing that the social environment provides the context within which individuals are exposed to structural risk factors (poverty, social isolation, stressful working environments) and adopt detrimental behaviors (cigarette smoking, physical inactivity, poor diets).^{2,3} Under this model, primary prevention of heart disease can be achieved through community-wide improvements in the social environment, including full employment in healthy work environments, access to affordable healthy foods and recreational facilities, freedom from bigotry and discrimination, and opportunities for social interaction and participation in civic life.⁴

¹ U.S. Department of Health and Human Services. *Healthy People 2000: National Health Promotion and Disease Prevention Objectives*. DHHS Pub. No.(PHS) 91-50212. Washington DC: U.S. Government Printing Office, 1991.

² Selar ED. Community economic structure and individual well-being: a look behind the statistics. *International Journal of Health Services* 1980; 10:563-579.

³ Armstrong D, Barnett E, Casper M, Wing S. Community occupational structure, medical and economic resources, and coronary mortality among US blacks and whites, 1980-1988. *Annals of Epidemiology* 1998; 8(3):184-191.

⁴ Wing S. Social inequalities in the decline of coronary mortality. *American Journal of Public Health* 1988; 78:1415-6.

In this section of *Men and Heart Disease*, we examined several aspects of local social environments that are relevant for primary and secondary prevention of heart disease mortality. The three indicators of the quality of the social environment that we examined were: race or ethnicity-specific population distributions, local economic resources, and medical care resources.

The first set of maps depicts the *population distribution* for each racial and ethnic group for whom heart disease mortality data were analyzed. There are dramatic patterns of spatial concentration of racial and ethnic minorities in particular localities and regions within the United States. Geographic segregation and concentration of particular racial and ethnic groups are important predictors of access to economic opportunities, social services, and medical care resources.

Local economic resources for all counties in the United States were examined with a summary index composed of three measures: white collar employment, unemployment, and family incomes. Local economic resources often determine the availability of resources for healthful living, including safe and affordable foods and recreational facilities.

Finally, *medical care resources*, particularly those related to treatment and rehabilitation of patients with heart disease, were examined. Lack of local availability of medical care resources often means prohibitively expensive and time-consuming travel to a physician or hospital in a distant location for a patient with heart disease.^{5,6} We examined local availability of three specific heart disease care resources: cardiovascular disease specialty physicians, coronary care unit beds, and cardiac rehabilitation units.

⁵ Behringer B. Health care services in Appalachia, in Couto RA, Harris G, Simpson NK (eds); *Sowing Seeds in the Mountains: Community-Based Coalitions for Cancer Prevention and Control*. Bethesda, MD: National Cancer Institute; 1994:62-80.

⁶ Whiteis DG. Third world medicine in first world cities: capital accumulation, uneven development and public health. *Social Science and Medicine* 1998; 47:795-808.

In 1990, there were over 120 million men of all ages, races, and ethnicities living in counties across the United States.¹ Each racial and ethnic group has its own unique geographic pattern of population clusters, concentrations, and dispersion. Each pattern reflects differences in migration histories, social and economic opportunities, political conditions, recent immigration rates, cultural preferences, and fertility rates.

The United States population is becoming more diverse by race and Hispanic origin. For example, from 1994 to 1995 the population of Asian and Pacific Islanders increased 3.8 percent, the Latino population increased 3.5 percent, and the African American, American Indian, and Alaska Native populations increased 1.5 percent while the white population increased only 0.8 percent.² Population projections from the Bureau of the Census suggest that by 2050 the white non-Hispanic population may drop to 52.5 percent of the United States population compared with its 1990 level of 75.7 percent. Latinos may then be the second largest group comprising 22.5 percent of the population, followed by blacks (15.7 percent), Asian and Pacific Islanders (10.3 percent) and American Indians and Alaska Natives (1.1 percent).³

It is important to remember that, in this book, populations defined by race (Asians and Pacific Islanders, American Indians and Alaska Natives, African Americans, and whites) are not mu-

tually exclusive of the population defined by Hispanic origin. In other words, each of the four race groups includes men of Latino ethnicity; similarly, the Hispanic population includes men of all races. The population totals for “all men” result from the sum of the population totals for each of the four race groups.

Recent migration patterns within the United States have strongly influenced the distribution of population by race and ethnicity. Specific migration flows include: 1) a movement away from rural areas into the cities, 2) a countermovement away from cities and suburbs to nearby nonmetropolitan counties, and 3) interregional movements predominantly driven by economic opportunities, largely from east to west, but increasingly from north to south and away from California to the north and east.⁴

The maps in this section portray two dimensions of the population distribution for each of the racial and ethnic groups. Counties are categorized according to the number of men in each racial and ethnic group as well as the percentage of men in the county who belong to each racial and ethnic group. These two dimensions allow the reader to identify the counties with the largest populations of men within each racial and ethnic group while also noting where each racial and ethnic group is most heavily concentrated.

¹ Bureau of the Census. *General Population Characteristics: United States, 1990 Census of Population*. 1990 CP-1-1. Washington DC: U.S. Government Printing Office.

² Deardorf KE, Montgomery P. National population trends. in U.S. Bureau of the Census, current population reports, series p23-189, *Population Profile of the United States: 1995*. Washington DC: U.S. Government Printing Office, 1995.

³ Day JC. National population projections. in U.S. Bureau of the Census, current population reports, series p23-189, *Population Profile of the United States: 1995*. Washington DC: U.S. Government Printing Office: 1995.

⁴ Paterson JH. *North America*. Oxford: Oxford University Press, 1994, pp.58-60.

American Indian and Alaska Native Men

According to the Bureau of the Census, in 1990 there were 1,959,234 American Indians and Alaska Natives living in the United States, of whom 49 percent were male (n = 986,186)¹. With over 500 federally recognized tribes, there is substantial geographic, cultural, historical and linguistic diversity among American Indian and Alaska Native peoples. The tribes also vary in size, with only four tribes having greater than 100,000 members: Cherokee, Navajo, Chippewa, and Sioux².

In 1990, nearly one-half of the American Indian and Alaska Native population lived in the West, 29 percent lived in the South, 17 percent lived in the Midwest and six percent lived in the Northeast¹. The concentration of American Indians and Alaska Natives in the West and the small population sizes in the Northeast reflect the effects of the Indian Removal Bill passed in 1830 which mandated the removal of all Indians east of the Mississippi River³. Many of the Tribal Nations from the East were forced to resettle in what is now Oklahoma. In 1990, Oklahoma was the state with the largest population of American Indians and Alaska Natives. More than one half of the American Indian and Alaska Native population lived in just 6 states - all located in the West: Oklahoma, California, Arizona, New Mexico, Alaska and Washington². The tribal nations currently residing in the East are descendants of small bands of Indians who escaped removal and managed to remain on their native lands. The largest American Indian populations in the east are located in New York and North Carolina³.

The map (opposite) depicts the county distribution of the population of American Indian and Alaska Native men ages 35 years

and older in 1995. Both numbers of men (labeled *population* on the legend) and the proportion of all men who were American Indian or Alaska Native (labeled *proportion* on the legend) are displayed on the map. Counties were assigned to one of nine categories based on both population size and proportion of men who were American Indian or Alaska Native. Counties of the lightest color on the map had fewer than 5,000 American Indian and Alaska Native men who comprised less than 10 percent of all men ages 35 years and older. An increasing intensity of grey represents increasing population size and increasing intensity of yellow represents greater proportions of American Indian and Alaska Native men. The deepest turquoise represents counties with a combination of the largest numbers and highest proportions of American Indian and Alaska Native men.

Counties with the highest proportions of American Indian and Alaska Native men were located primarily in the following western states: Alaska, Arizona, New Mexico, Utah, North Dakota, South Dakota, and Montana. None of the counties in the United States had populations of American Indian and Alaska Native men larger than 50,000. Fewer than 4,999 American Indian and Alaska Native men (comprising less than 10 percent of the male population) live in the vast majority of US counties. This pattern reflects the fact that only 22.3 percent of the American Indian and Alaska Native population live on reservations² and most of the 314 reservations and trust lands have a population smaller than 1,000 (only 10 reservations had populations greater than 7,000; see table). With the exception of Los Angeles and Phoenix, American Indian and Alaska Native men live predominantly in nonmetropolitan areas.

Ten Reservations with the Largest Numbers of American Indians and Alaska Natives: 1990

Navajo (AZ, NM, UT*)	143,405
Pine Ridge (NE, SD*)	11,182
Fort Apache (AZ)	9,825
Gila River (AZ)	9,116
Papago (AZ)	8,480
Rosebud (SD*)	8,043
San Carlos (AZ)	7,110
Zuni Pueblo (AZ, NM)	7,073
Hopi (AZ*)	7,061
Blackfeet (MT)	7,025

* includes trust lands

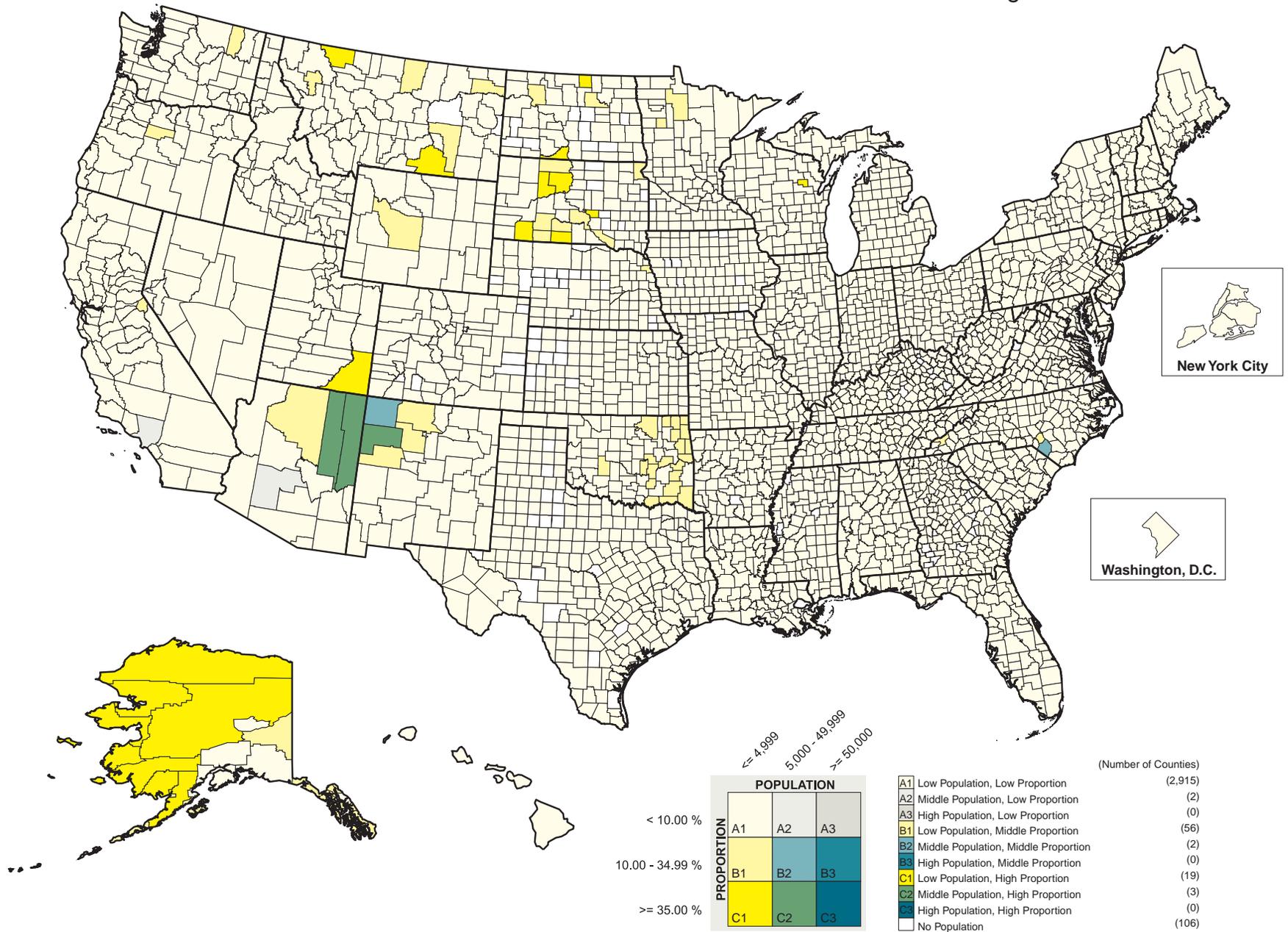
¹ Paisano EL. The American Indian, Eskimo, and Aleut Population. in U.S. Bureau of the Census, Current Population Reports, Series P23-189, *Population Profile of the United States: 1995*. US Government Printing Office, Washington DC, 1995. Census of Population and Housing STF1 Table P012E.

² Bureau of the Census. *We the First Americans*. Washington DC: U.S. Government Printing Office, September 1993.

³ Snipp CM. *American Indians: The First of this Land*. New York: Russel Sage Foundation, 1989.

Geographic Distribution of Population
1995

American Indian and Alaska Native Men
Ages 35 Years and Older

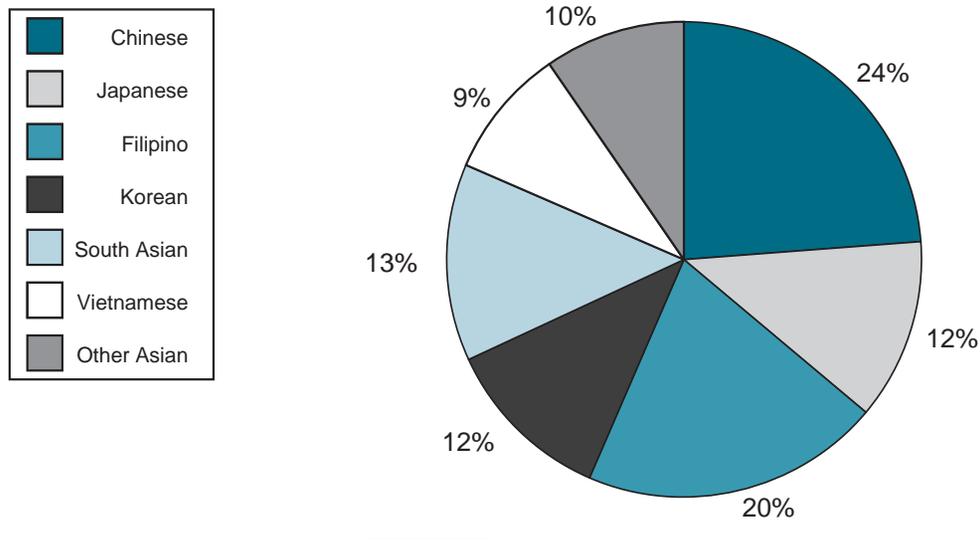


Asian and Pacific Islander Men

The Asian and Pacific Islander population of the United States is highly diverse in ethnicity, language, and country of origin. In 1990 the census counted 7.3 million Asians and Pacific Islanders, who comprised about three percent of the total population and of whom 49 percent were male ($n = 3,558,038$)¹. Asians and Pacific Islanders in the United States reside predominantly in metropolitan areas, and are also more likely to reside in central cities than non-Hispanic whites.¹

Asians of various ethnicities comprise 95 percent of the total Asian and Pacific Islander population.² About half of Asians in the United States are of Chinese, Japanese, or Korean ethnicity. Other significant groups include Filipinos, South Asians (Indians, Pakistanis, Bangladeshis, and Sri Lankans), and Vietnamese. Overall, 66 percent of Asians in the United States were born in foreign countries, but the percent who were foreign born varies considerably by ethnicity. In 1990, only 32 percent of persons of Japanese ethnicity were foreign-born.²

Figure 3.1
Asian populations in the
United States, 1990



¹ Bennett CE, Martin B. The Asian and Pacific Islander Population, pp.48-49, in U.S. Bureau of the Census, Current Population Reports, Series P23-189, *Population Profile of the United States: 1995*. U.S. Government Printing Office, Washington DC, 1995.

Pacific Islanders comprise approximately five percent of the total Asian and Pacific Islander population. Most Pacific Islanders were Hawaiian (58 percent) in 1990, followed by Samoan (17 percent), Guamanian (14 percent) and all other (11 percent).³ Pacific Islanders reside predominantly in the western United States; in 1990 75 percent of Pacific Islanders lived in either Hawaii or California. Only 13 percent of Pacific Islanders living in the United States in 1990 were born outside the United States.

The map (opposite) depicts the county distribution of the population of Asian and Pacific Islander men ages 35 years and older in 1995. Both numbers of men (labeled *population* on the legend) and the proportion of all men who were Asian or Pacific Islander (labeled *proportion* on the legend) are displayed on the map. Counties were assigned to one of nine categories based on population size and proportion of men who were Asian or Pacific Islander. Counties of the lightest color had fewer than 5,000 Asian and Pacific Islander men who comprised less than 10 percent of all men ages 35 years and older. The increasing intensity of grey in the map legend represents increasing population size and the increasing intensity of yellow represents greater proportions of Asian and Pacific Islander men. The counties shaded the deepest turquoise have a combination of both the largest numbers and the highest proportions of Asian and Pacific Islander men.

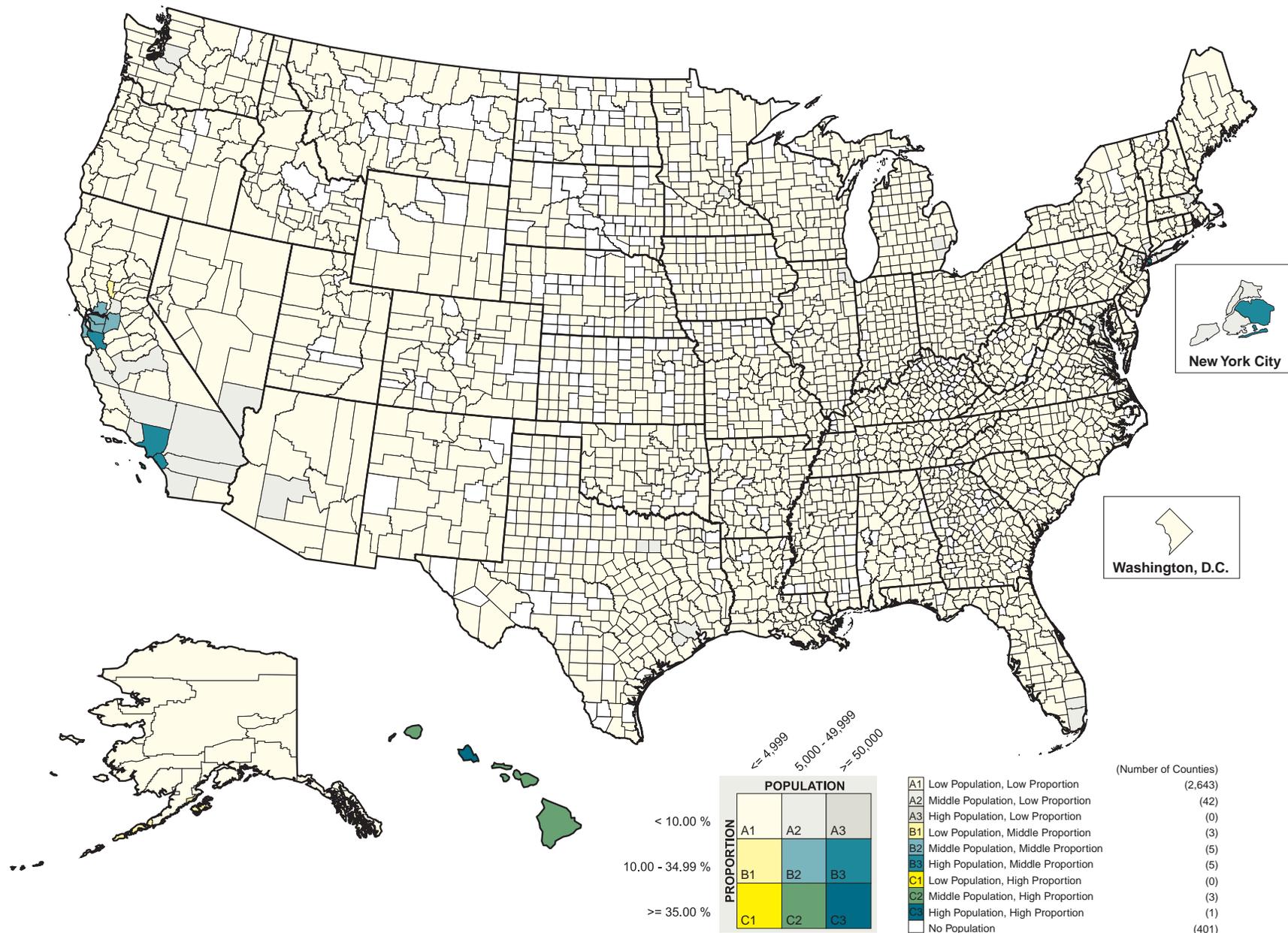
Although only 401 counties in the United States had no Asian or Pacific Islander men ages 35 years and older in 1995, the great majority of counties ($n=2,643$) were included in the lowest category of both population size and proportion. High proportions of Asian and Pacific Islander men were found only in Hawaii, several counties in California, especially in the Bay Area, Los Angeles and Orange County, and in Queens County, New York (part of New York City). Moderately sized populations of Asian and Pacific Islander men resided in several metropolitan areas, including greater New York City, Chicago, Boston, suburban Washington DC, Detroit, Minneapolis, Miami, Houston, Dallas, and Seattle.

² Bureau of the Census. *We the Americans: Asians*. U.S. Government Printing Office, Washington DC, September 1993.

³ Bureau of the Census. *We the Americans: Pacific Islanders*. U.S. Government Printing Office, Washington DC, September 1993.

Geographic Distribution of Population
1995

Asian and Pacific Islander Men
Ages 35 Years and Older



The 1990 United States census counted almost 30 million African Americans, who comprised 12 percent of the total population.¹ Of these 14,170,151 or approximately 47 percent were black men, the lowest sex ratio among racial and ethnicity groups². Most black people born in the United States today are descended from West Africans who were forced to immigrate as slaves to European colonies in the Caribbean and North America during the sixteenth to the nineteenth centuries. A small but increasing proportion of United States blacks are recent immigrants from Africa, the Caribbean, South America and elsewhere. The geographic distribution of the black population reflects the original settlement of early African migrants in the South, as well as more recent internal migrations to northeastern and Midwestern cities.³ Although today most blacks nationwide live in metropolitan areas (83.8 percent), a substantial proportion of blacks in the South live either in nonmetropolitan areas (28.0 percent) or outside of central cities (27.9 percent).⁴

The map (opposite) depicts the county distribution of the population of black men ages 35 years and older in 1995. Both numbers of men (labeled *population* on the legend) and the proportion of all men who are black (labeled *proportion* on the legend) are displayed on the map. Counties of the lightest color on the

map had fewer than 5,000 black men who comprised less than 10 percent of all men ages 35 years and older. On the map, the increasing intensity of grey color is related to increasing numbers of black men and the increasing intensity of yellow is related to greater proportions of black men. Counties shaded the deepest turquoise reflect a combination of both the largest numbers and highest proportions of black men in the total male population aged 35 years and older.

Black men are the second most numerous and geographically dispersed group of men in the nation, and comprised 35 percent or more of the total population of men in 161 counties in 1995. Counties with a high proportion of black men included those in New York City, Philadelphia, Atlanta, the District of Columbia, Detroit, and Memphis, and a number of smaller metropolitan and rural counties in the southern states of Louisiana, Arkansas, Mississippi, Alabama, Florida, Georgia, South Carolina, North Carolina and Virginia. Elsewhere, black men resided predominantly in moderate to large metropolitan areas, including Chicago, Los Angeles, San Francisco, Dallas and Houston. A substantial number of counties nationwide had no black men residents in 1995 (n=302), and a majority (n=2,032) had both low populations and low proportions of black men in 1995.

¹ Bennett CE, DeBarros KA. The Black Population, pp.44-45, in U.S. Bureau of the Census, Current Population Reports, Series P23-189, *Population Profile of the United States: 1995*. Washington DC: U.S. Government Printing Office, 1995.

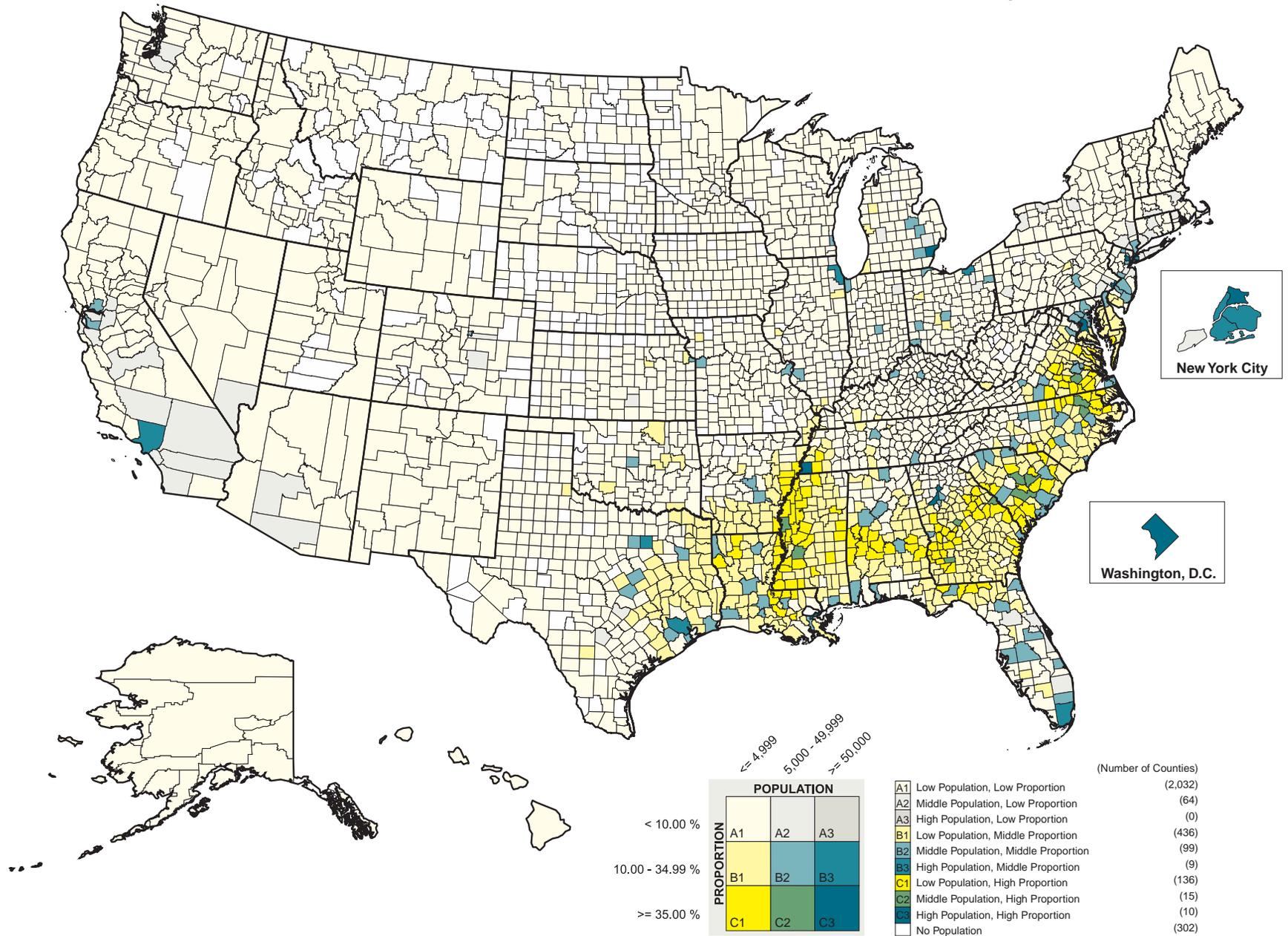
² Some minority groups, especially those in urban areas were undercounted by as much as 10 percent in the 1990 Census. The precision of population counts is always subject to uncertainty. See Word D L. *Who Responds/Who Doesn't? Analyzing Variation in Mail Response Rates During the 1990 Census*, Population Division Working Paper No. 19, Population Division, Washington DC: U.S. Bureau of the Census, July 1997.

³ Smallwood AD. *The Atlas of African-American History and Politics: From the Slave Trade to Modern Times*. Boston: McGraw Hill, 1998.

⁴ Bureau of the Census. *We the Americans: Blacks*. Washington DC: U.S. Government Printing Office, September 1993.

Geographic Distribution of Population
1995

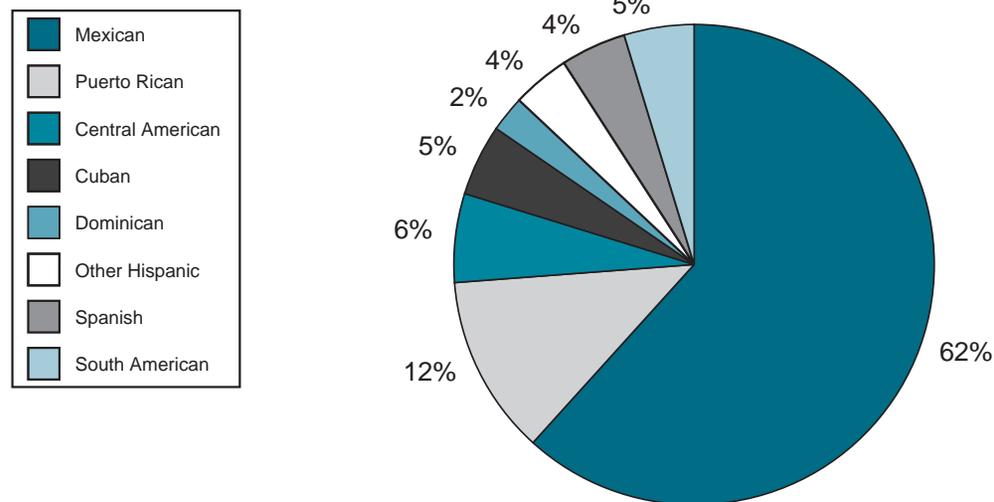
Black Men
Ages 35 Years and Older



Hispanic Men

The term Hispanic, as defined by the Federal Office of Management and Budget, refers to persons of Spanish culture or origin, regardless of race. The Hispanic population in the United States includes men who refer to themselves as Latino, Chicano, Puerto Rican, and Cuban, among many other designations¹. In 1993 there were 22.8 million persons of Hispanic origin, comprising nearly nine percent of the total population.² Fifty percent of the total, 11,388,059, were male. The Hispanic population is very diverse in race, ethnicity, culture, and country of origin. Most Hispanics in the United States are of Mexican origin (61.2 percent), followed by Puerto Rican origin (12.1 percent), and Central American origin (6.0 percent).³ Of all Hispanics in the United States in 1990, the majority were native born (64.2 percent), and an additional 9.4 percent were naturalized citizens.³

Figure 3.2
Hispanic populations in the United States, 1990



¹ Oboler S. Hispanics? That's what they call us, pp 3-5, in Delgado R, Stefancic J (eds). *The Latino/a Condition*. New York: New York University Press, 1998.

² Del Pinal J. The Hispanic Population, pp.46-47, in U.S. Bureau of the Census, Current Population Reports, Series P23-189, *Population Profile of the United States: 1995*. Washington DC: U.S. Government Printing Office, 1995.

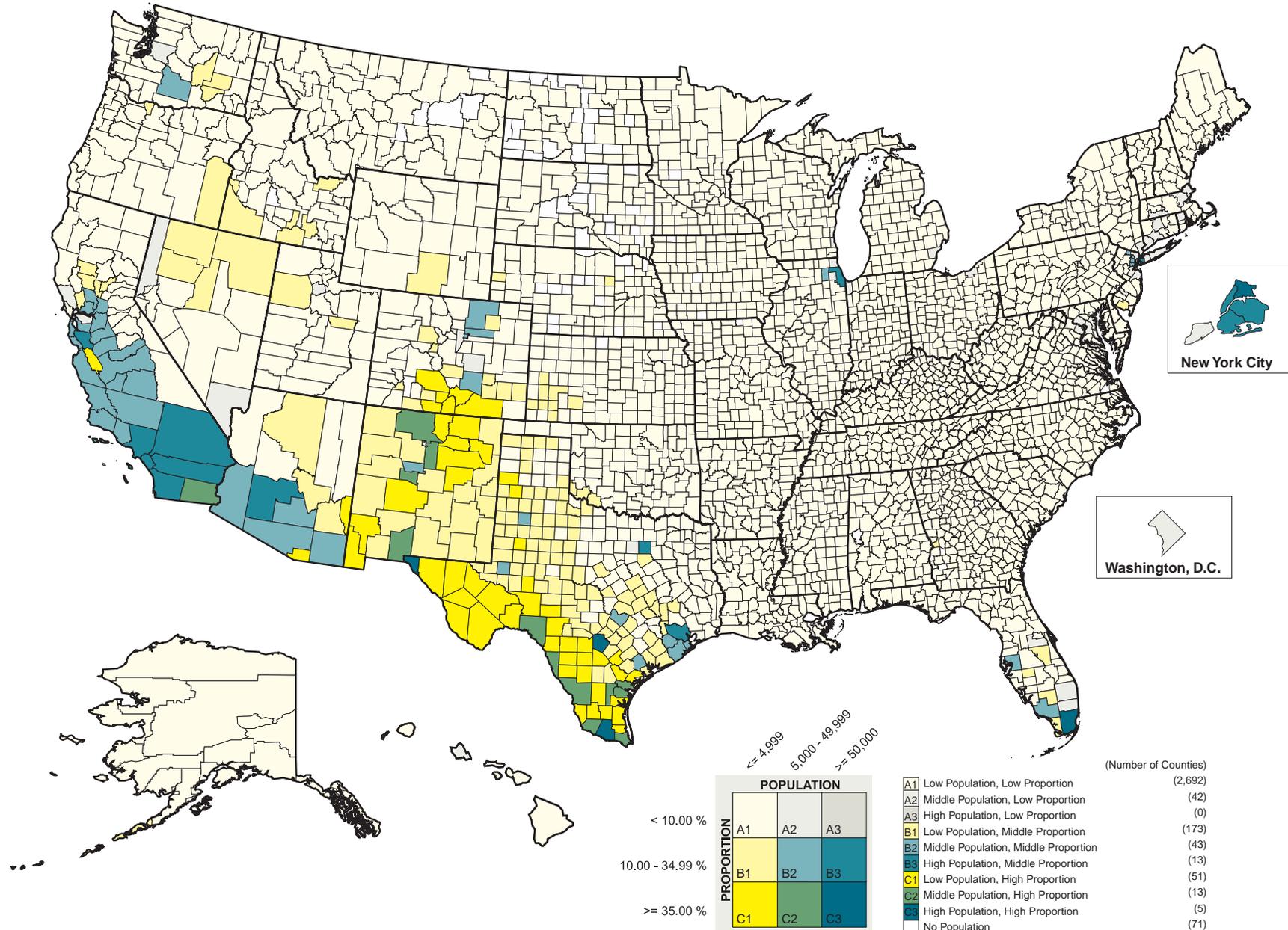
This map (opposite) depicts the county distribution of the population of Hispanic men ages 35 years and older in 1995. Following the convention of the U.S. Bureau of the Census, we defined the population of Hispanic men to include men of all races. Similarly, the populations of men in each race group include some men of Hispanic origin. On the map, both numbers of men (labeled *population* on the legend) and the proportion of all men who were Hispanic (labeled *proportion* on the legend) are displayed. Counties of the lightest color on the map had fewer than 5,000 Hispanic men who comprised less than 10 percent of all men ages 35 years and older. In the legend, an increasing intensity of grey is related to increasing numbers of Hispanic men and the increasing intensity of yellow is related to greater proportions of Hispanic men. Counties depicted in deepest turquoise reflect a combination of both the largest numbers and highest proportions of Hispanic men.

In 1995 there were five counties that had both a large population and a high proportion of Hispanic men. These counties included the Bronx in New York City, Miami-Dade, San Antonio, El Paso, and Brownsville. Several other counties in the Southwest, Florida, and the New York City metropolitan area had moderate or high populations or proportions of Hispanic men. Populations of Hispanic men larger than 50,000 with proportions of between 10 and 35 percent were found in Los Angeles, San Francisco, and a number of agricultural counties in central California. In New Mexico, Hispanic men comprised at least ten percent of all men in every county. Whereas only 71 counties in the United States had no Hispanic men, most counties (n=2,692) had fewer than 5,000 Hispanic men in 1995.

³ Bureau of the Census. *We the Americans: Hispanics*. Washington DC: U.S. Government Printing Office, September 1993.

Geographic Distribution of Population
1995

Hispanic Men
Ages 35 Years and Older



Whites are the majority population in the United States, and white men (n= 97,475,880) made up 80 percent of men from all races and ethnicities combined in 1990¹. As with other race and ethnicity groups, there is a wide diversity of cultural and historical backgrounds within the population classified as white. This diversity is reflected in the ancestral origins of the United States population. Among the top ten most frequently reported white ancestral groups in the nation are German (23 percent of the total population), Irish (16 percent), English (13 percent), Italian (6 percent), French (4 percent) and Polish (4 percent). Although white men live in all counties across the nation, many of the subgroups are heavily concentrated in specific regions. For example, more than half the nation's Italians are found in the northeast, half the Norwegians and Czechs in the Midwest, and more than 40 percent of the Scots-Irish are found in the South.²

The map (opposite) depicts the county distribution of the population of white men aged 35 years and older in 1995. Both the number of men (labeled *population* on the legend) and the proportion of all men who were white (labeled *proportion* on the legend) are displayed on the map. In the legend, counties are assigned to one of nine categories based on a combination of population size and proportion of white men. Counties of the lightest color on the map had fewer than 5,000 white men, who comprised less than 10 percent of all men ages 35 years and older. The increasing intensity of grey is related to increasing population size and the increasing intensity of yellow is related to greater proportions of white men. Counties depicted in the deepest turquoise shading reflect a combination of both the largest numbers and the highest proportions of men who are white.

Regardless of population size, white men comprise at least 35 percent of the population in all but 15 counties in the United States, and there are no counties where white men account for less than 10 percent of the population. White men account for more than 35 percent in greater numbers than 50,000 in 215 counties. The 14 counties where white men number fewer than 5,000 and comprise less than 35 percent of the population are found in Alaska where the majority of the population is Alaska Native, in parts of New Mexico and South Dakota that belong to American Indian Tribal Nations, and in a handful of southern rural counties whose populations are predominantly African American.

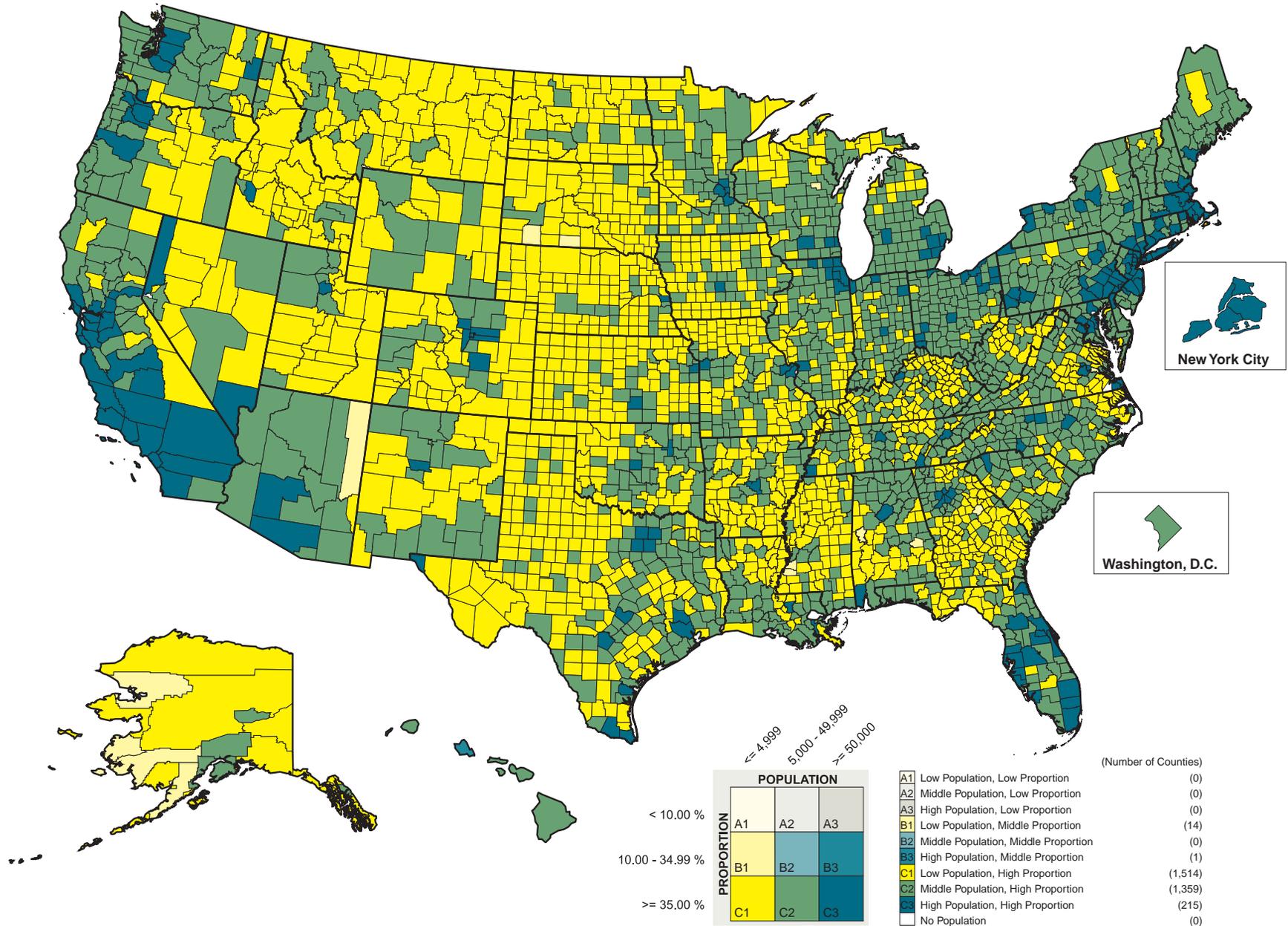
The patterns of population size among white men reflect the overall urban-rural population distribution in the United States. Clusters of counties with more than 50,000 white men are distributed along the southern coast of California and the desert Southwest, in the Pacific Northwest, along the northeast corridor along the Atlantic, and in southern Florida. Other more dispersed clusters in the Northeast, Midwest, and South, clearly mark the locations of the nation's major cities and urban agglomerations. Surrounding many of the urban centers are counties falling into the mid-population range. Counties with fewer than 5,000 white men are widespread in the agricultural interior of the country stretching north from Southwestern Texas through the Great Plains, to Montana and the Dakotas and west through the desert and mountain West. Many counties of the rural regions of Appalachia, southern Georgia, Alabama, and the Mississippi Delta also have small populations of white men.

¹ Bureau of the Census. *General Population Characteristics: United States*. 1990 Census of Population. 1990 CP-1-1. Washington DC: U.S. Government Printing Office, 1993.

² Bureau of the Census. *We asked... You told us: Ancestry*. Census Questionnaire Content, 1990 CQC-14 Washington DC: U.S. Bureau of the Census. February 1995.

Geographic Distribution of Population
1995

White Men
Ages 35 Years and Older



In the United States, uneven development has created a highly variable landscape of socioeconomic conditions and opportunities. Uneven economic development has resulted in a concentration of wealth and resources in some areas (usually large cities) and underdevelopment of other, predominantly rural areas.¹ Underdevelopment is an historical, political, and economic process by which wealth generated within a region (by the labor of its residents) is exported outside the region (by owners of firms, factories, and mines) rather than being reinvested within the region to benefit local communities.² Developed economic centers, including many large metropolitan areas, typically enjoy high levels of economic activity and economies of scale that result in increased median incomes and greater availability of public, social, cultural, and health services than in smaller urban and rural areas.³⁻⁷

Several studies have shown that, compared with high-resource areas, local communities with low levels of economic re-

sources, as measured by income, occupation, and education profiles, had higher rates of heart disease mortality from the 1960s to the 1980s and were slower to experience the onset of decline in heart disease mortality in the 1960s and 1970s.^{3,8} Per capita government expenditures for employment, social, and health services were lower in these areas than in high economic resource areas.³

The uneven distribution of local economic resources within the United States poses significant barriers to the development of standardized community-wide programs and policies to reduce the burden of heart disease. Differences in the local economic infrastructure should be considered when community-based programs to prevent heart disease are being designed. Documentation of the geographic distribution of local economic resources also may suggest important directions for further research on the determinants of geographic inequalities in heart disease mortality among men.

¹ Fox K. Uneven regional development in the United States. *Review of Radical Political Economy* 1978; 10:68-86.

² Lyson TA, Falk WW. Forgotten places: poor rural regions in the United States, in Lyson TA, Falk WW (eds); *Forgotten Places: Uneven Development in Rural America*. Lawrence, University of Kansas Press; 1993.

³ Armstrong D, Barnett E, Casper M, Wing S. Community occupational structure, medical and economic resources and coronary mortality among US blacks and whites, 1980-1988. *Annals of Epidemiology* 1998; 8:184-191.

⁴ Sclar ED. Community economic structure and individual well-being: a look behind the statistics. *International Journal of Health Services* 1980; 10:563-79.

⁵ Barnett E, Elmes GA, Braham VE, Halverson JA, Lee JY, Loftus S. *Heart Disease in Appalachia: An Atlas of County Economic Conditions, Mortality, and Medical Care Resources*. Morgantown, WV: Prevention Research Center, West Virginia University, June 1998.

⁶ Whiteis DG. Third world medicine in first world cities: capital accumulation, uneven development and public health. *Social Science and Medicine* 1998; 47:795-808.

⁷ Behringer B. Health care services in Appalachia, in Couto RA, Harris G, Simpson NK (eds); *Sowing Seeds in the Mountains: Community-Based Coalitions for Cancer Prevention and Control*. Bethesda, MD: National Cancer Institute; 1994:62-80.

⁸ Wing S. Social inequalities in the decline of coronary mortality. *American Journal of Public Health* 1988; 78:1415-16.

The geographic distribution of local economic resources was examined in this report with a summary index based on three measures. *Median family income* has been used independently as an indicator of economic development by social scientists.¹ *Occupational structure* was measured by the proportion of employed workers in white collar jobs—i.e., managerial, professional, technical, sales, and administrative support positions. Occupational structure reflects the division of labor within a local population and the position of a local community in the larger national and international economies.² The *unemployment rate* is defined as the proportion of workers in the civilian labor force who currently are not employed and who are actively looking for work. It is a direct indicator of local economic opportunity and underdevelopment. A high unemployment rate negatively affects all members of the labor force, including those who are employed, by providing leverage for employers to keep wages and benefits low.^{3,4}

The three variables that composed the summary index of local economic resources (median family income, percent white collar employment, and percent unemployed) were all measured in 1990. Data for the index of local economic resources were obtained from the Area Resource File. Details about this data source can be found in Appendix B. The index was calculated by ranking all counties separately for each variable. For each variable, the counties were then categorized into deciles, and each decile was assigned a score ranging from zero to nine. Counties in the decile with the poorest economic conditions (lowest median income, lowest occupational structure, highest unemployment rate) were assigned a score of zero and counties in the decile with the most advantaged economic conditions were assigned a score of nine. For each county, the scores from

the three variables were added together to arrive at the index score. Values of the index score ranged from zero (counties that were in the lowest decile for all three dimensions of the index) to 27 (counties that were in the top decile for all three dimensions of the index). Counties were divided into five groups with roughly equal ranges of index values on the map. Dark teal represents counties with the least favorable local economic resource profiles, and light teal represents counties with the most favorable profiles.

A distinctive pattern was apparent for the geographic distribution of local economic resources in 1990. Clusters of counties with very unfavorable local economic resource profiles were found in several rural, underdeveloped regions of the country. These regions included Appalachia, the Mississippi Delta, the Texas border counties, and the Cotton Belt counties of the South. Unfavorable local economic resource profiles were found in many other counties as well, mostly in rural areas. Clusters of counties with the most favorable local economic resource profiles were found in the metropolitan areas of the eastern seaboard from the District of Columbia, north through the New York City metropolitan area to Boston. Metropolitan and surrounding counties in southern Florida, the San Francisco Bay area, and southern California also had very favorable local economic resource profiles in 1990. The contrast in levels of local economic resources between rural and metropolitan counties was most apparent in Appalachia and the South. In Kentucky, the cities of Lexington and Louisville had favorable local economic resource profiles, but rural counties to the east had very unfavorable profiles. The same contrast was evident for both Nashville, TN and Jackson, MS and the surrounding rural counties.

¹ Nielsen F, Alderson AS. The Kuznets curve and the great U-turn: income inequality in U.S. counties, 1970 to 1980. *American Sociological Review* 1997; 62:12-33.

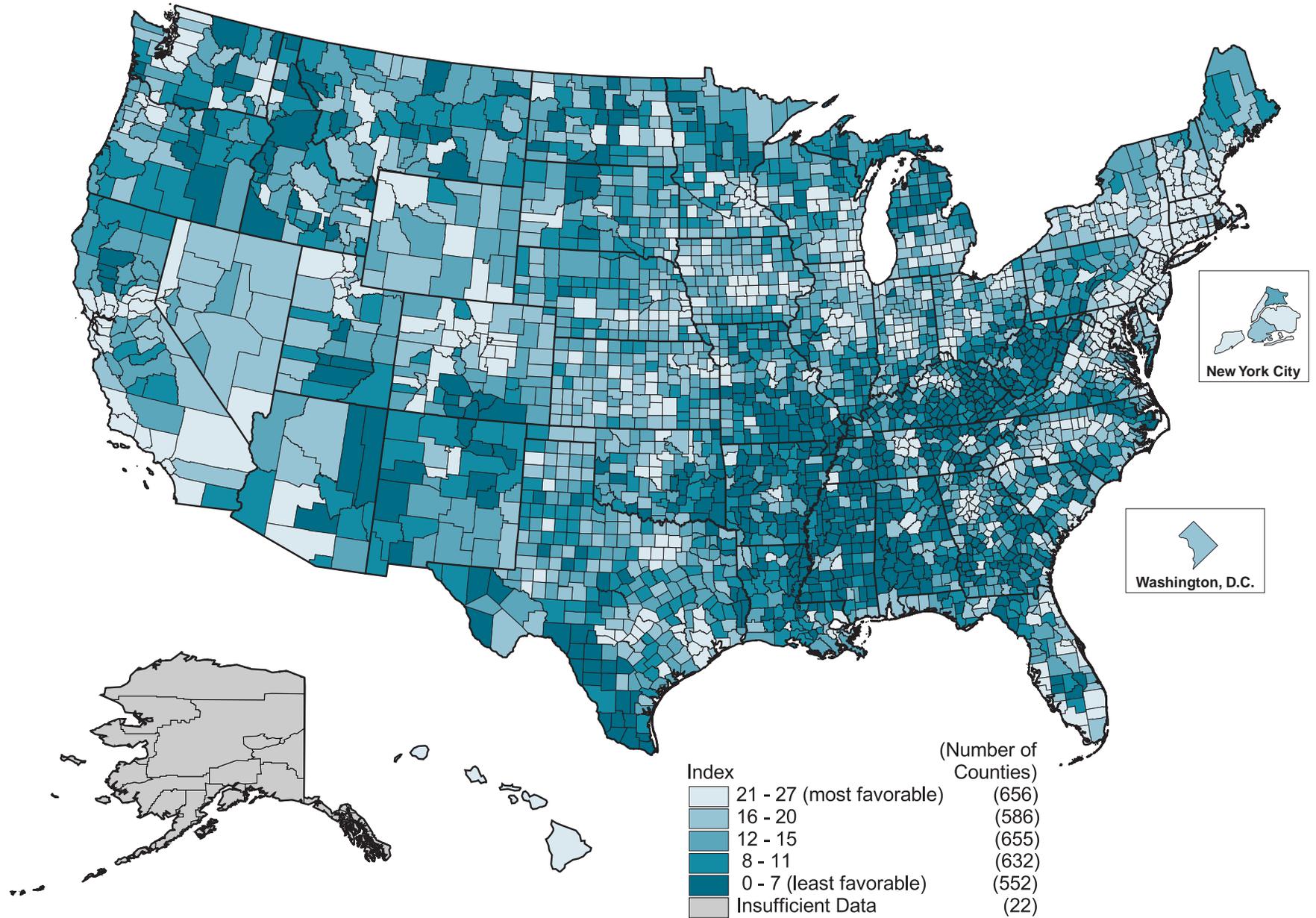
² Armstrong D, Barnett E, Casper M, Wing S. Community occupational structure, medical and economic resources and coronary mortality among US blacks and whites, 1980-1988. *Annals of Epidemiology* 1998; 8:184-91.

³ Lyson TA, Falk WW (eds). *Forgotten Places: Uneven Development in Rural America*. Lawrence: University of Kansas Press, 1993.

⁴ Lobao LM. *Locality and Inequality: Farm and Industry Structure and Socioeconomic Conditions*. Albany: The State University of New York Press, 1990.

Local Economic Resource Index
1990

Total Population
All Ages



The availability and accessibility of medical care resources play an important role in the secondary prevention of heart disease. The American Heart Association defines secondary prevention as “identifying and treating persons with established disease and those at very high risk of developing disease, and treating and rehabilitating patients who have had a heart attack to prevent a second cardiovascular event.”¹ There are currently a number of thrombolytic therapies (“clot busters”) that can save lives if administered within 12 hours after the onset of heart attack symptoms. In clinical studies, thrombolytic drugs have been associated with an overall 25 percent to 30 percent reduction in mortality from acute myocardial infarction.² The greatest improvements in survival occur if drugs are given within one to two hours after the onset of symptoms. Invasive cardiac procedures (e.g. angioplasty, coronary artery bypass surgery, and cardiac stenosis) can also save lives and reduce disabilities related to heart disease if they are performed in a timely fashion.

The benefits of drug treatments and surgical procedures depend on widespread recognition of the signs and symptoms of a heart attack and rapid access to quality medical care facilities and health professionals. For many men in the United States, however, there are substantial barriers to receiving needed medical care. These barriers include poverty, lack of health insurance, rural isolation, social isolation, and absence of cardiac care physicians and facilities in their communities. Men of minority racial or ethnic groups may be particularly disadvantaged in their access to medical care resources, given the geographic distribution of these populations, indicating these areas may be underserved. Local availability of three specific medical care resources was examined: cardiovascular specialty physicians, coronary care unit beds, and cardiac rehabilitation units. County data on the availability of these resources were obtained from the Area Resource File (see Appendix B for details). County-specific data were not available for Alaska.

¹ American Heart Association. *1998 Heart and Stroke Statistical Update*. Dallas, TX: American Heart Association, 1997.

² Ryan TJ, Anderson JL, Antman EM, et al. ACC/AHA Guidelines for the management of patients with acute myocardial infarction: executive summary. A report of the American College of Cardiology/American Heart Association Task Force on practice guidelines (Committee on Management of Acute Myocardial Infarction). *Circulation* 1996; 94:2341-50.

Cardiovascular Disease Specialty Physicians

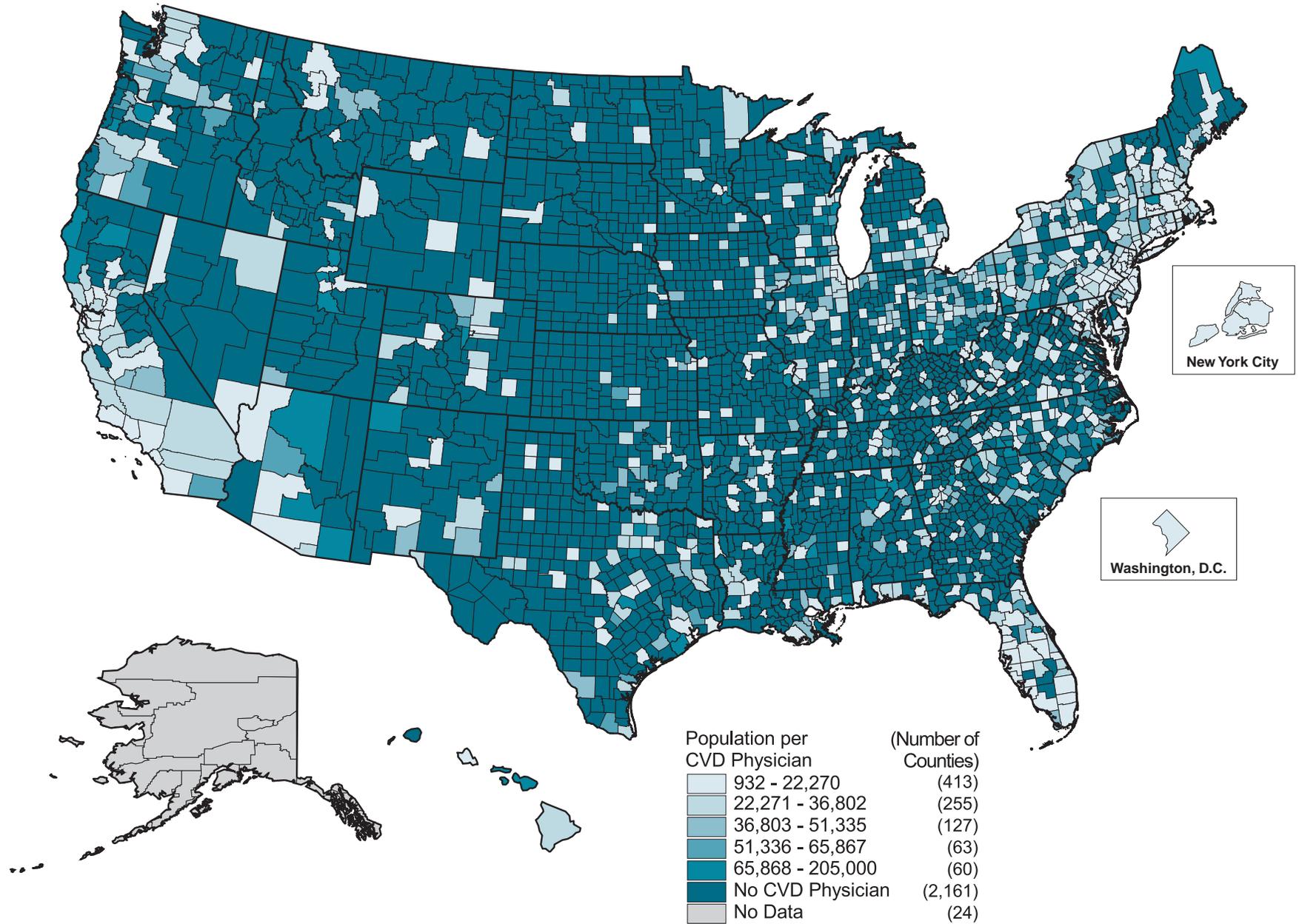
Cardiovascular disease (CVD) specialty physicians have specialized training in the diagnosis of heart disease, case management, medical and surgical treatment, and cardiac rehabilitation. Given their specialized training, the presence of CVD specialty physicians in a local community increases the availability of medical and surgical interventions for heart disease.

In 1990, 70 percent of the counties in the United States had no CVD specialty physicians. For much of the western United States, the large expanse between counties that had CVD specialty physicians posed a serious obstacle to timely and appropriate cardiac care. Patients who lived in a county with no CVD specialty physicians often faced prohibitively expensive and time-consuming travel to a physician in a distant location. States with few counties that had CVD specialty physicians in 1990 included North Dakota, South Dakota, Iowa, Nebraska, Kansas,

Wyoming, and Montana. In the South, where rural areas were more densely populated than rural areas in the West, many counties also did not have CVD physicians in 1990. Many counties in the South, Midwest, and Northeast that did have CVD specialty physicians had high population to physician ratios, indicating that these areas were underserved.

Metropolitan counties throughout the United States were more likely to have favorable population to CVD specialty physician ratios than nonmetropolitan counties. The most favorable population to physician ratios were observed in the most highly urbanized and densely populated areas of the country—namely, the eastern seaboard from Boston to the District of Columbia, industrial centers of the Midwest, southern California, the San Francisco Bay area, and much of Florida.

Total Population per Cardiovascular Disease (CVD) Specialty Physician
1990



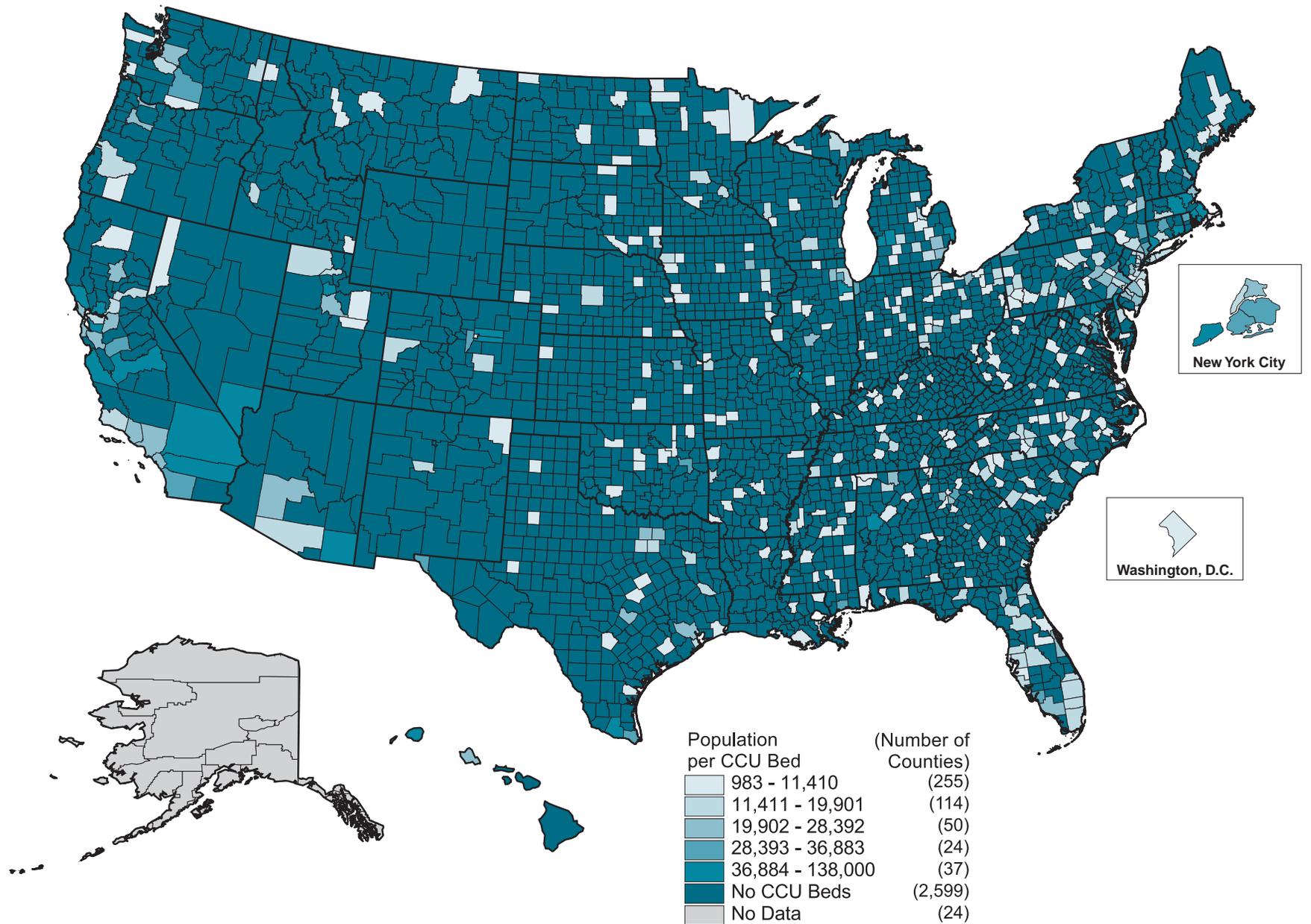
Coronary Care Unit Beds

The coronary care unit (CCU) is a vital component of medical care for acute myocardial infarction.¹ Intensive monitoring of cardiac patients for lethal arrhythmias is critical for the care of cardiac patients and has been shown to reduce hospital deaths by 30 percent. One method of measuring such care is through the availability of CCUs. However, in many communities where specialized CCUs are not available, cardiac patients may receive appropriate care in intensive care units equipped to conduct noninvasive monitoring of arrhythmias and invasive monitoring of arterial and pulmonary blood pressure. Trained staff and monitoring equipment should be available 24 hours per day.¹

In 1993, 84 percent of the counties in the United States did not have a single CCU hospital bed. Large geographic expanses of the country were without CCUs. Clusters of counties with CCU beds were found in the metropolitan counties of the eastern seaboard, Florida, and north central and southern California, including Boston, New York, Philadelphia, Baltimore, and San Diego. Many of these metropolitan areas had high population to hospital bed ratios, however. The most favorable population to CCU hospital bed ratios were found in several metropolitan areas, including the District of Columbia, Pittsburgh, Atlanta, Birmingham, San Antonio, and Reno.

¹ Task Force on the Management of Acute Myocardial Infarction of the European Society of Cardiology. Acute myocardial infarction: pre hospital and in hospital management. *European Heart Journal* 1996; 17:43-63.

Total Population per Coronary Care Unit (CCU) Bed
1993



Cardiac Rehabilitation Units

Cardiac rehabilitation units are designed to provide rehabilitative services to patients who have serious heart disease or are recovering from a heart attack. Cardiac rehabilitation services are usually provided in general hospitals, and their main purpose is to lower the risk of complications and death from heart disease.¹ The goal for many patients in cardiac rehabilitation is to develop a tailored exercise program that will work toward increasing their strength and aerobic fitness, reducing their blood pressure and cholesterol levels, and maintaining their weight loss. Cardiac rehabilitation units serve more than one individual at a time; therefore we mapped the total number of facilities offering cardiac rehabilitation services in each county instead of using the population ratio.

In 1993, a majority (60 percent) of United States counties did not have a cardiac rehabilitation unit. Counties with no availability of cardiac rehabilitation services were clustered in the South, the West, and rural areas throughout the country. Most counties in or near major metropolitan areas such as New York, Chicago, Los Angeles, and Miami had three or more cardiac rehabilitation units. Many metropolitan areas throughout the country had at least one cardiac rehabilitation unit. The concentration of cardiac rehabilitation services in metropolitan areas, meant that rural residents were faced with traveling long distances to receive rehabilitative care.

¹ Agency for Health Care Policy and Research. *Cardiac Rehabilitation: Clinical Practice Guidelines No. 17*. AHCPR Publication No. 96-0672. Rockville, MD: Agency for Health Care Policy and Research, October 1995.

Cardiac Rehabilitation Units (CRUs)

1993

